

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Brucella in Commercial Milk Supplies.*— Although extensive investigations have been carried on, and are being carried on, in California, on the incidence of undulant fever organisms or infection in dairy herds, relatively few investigations have been made on commercial milk as it reaches the consumer.

The results herein reported, although wholly negative, may be worthy of brief record.

The milk supplies of two areas were investigated, one urban and one rural, during the winter and spring of 1930. Samples were purchased directly on the market in San Francisco and Oakland at weekly intervals for four weeks. Each weekly set consisted of milk from each of four chief producers of certified milk, with two pasteurized milk samples, and one sample of goat's milk, on sale, pasteurized and bottled in this section. Thus, a total of twenty-eight samples were tested from the bay region. Samples from a rural district came from a town with a population of about two thousand in the Sacramento Valley. The town was supplied with raw uncertified milk from four producers. Samples † were purchased, packed in sawdust in thick balsa-wood boxes, and shipped. They were received within twenty-four hours in excellent condition. Each producer was represented weekly for four weeks, in all sixteen samples.

Tests were made of the milk as soon as samples were received. Milk in fifty cubic centimeter portions was centrifuged, cream and sediment mixed, and guinea-pigs were injected intramuscularly in one cubic centimeter amounts. In the urban samples, four pigs were used on each of the twenty-eight samples. With rural milk, six pigs were used per sample, two with an undiluted mixture of the cream sediment, two with a 1:100 dilution, and two with a 1:10,000 dilution. Thus 112 pigs were observed on urban, and 96 pigs on rural supplies. Routine plate counts were made of the milk as received.

Heart punctures were made on all animals at the time of inoculation and again at death for agglutination tests of the serums. No positive reactions were observed.

Animals were chloroformed after two and one-half (urban) or one and one-half (rural) months, and were posted and cultured immediately, using spleen specimens on liver hormone agar slants in duplicate, one partially sealed, and the other left unsealed. Cultures were incubated for at least ten days.

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†Thanks are due Dr. Monica Stoy Briner for her interest in procuring and shipping these samples.

Neither series of animals showed any evidence in gross pathology or in culture of *Brucella* infection. The work was performed during a series of studies involving guinea-pig inoculations with virulent cultures. The picture of infection in animals from the same stock and ample evidence of positive cultures on identical medium were thus at hand. This method of isolating *Brucella* organisms from milk is generally considered to be adequate. It would hence seem that *Brucella* were not present with any frequency in the milk supplies tested at the time of the investigation.

Plate counts of raw certified, pasteurized, and goat's milk in the bay region supplies were usually around 500 per cubic centimeter, and rarely exceeded 1000 per cubic centimeter. This is consistent with health-department tests, and is supported by the fact that no animals died due to infection.

Plate counts of rural milk samples varied greatly, from less than 1000 to 21,000 per cubic centimeter, with perhaps a usual count of around 5000. By direct culture and by animal tests pyogenic cocci were noted. Hemolytic and green-producing streptococci, and hemolytic staphylococci were noted in all four milk supplies. Death of some guinea-pigs occurred within a few days of inoculation. Necropsy showed various types of infection, abscesses, and involvement of the thoracic cavity, congestion of lungs, pericarditis, and suppurative lesions from which cocci of the types noted were recovered. No evidence of tuberculous infections was noted.

SUMMARY

Inoculations of 208 guinea-pigs with repeated samples of milk purchased on the open market in the winter and spring of 1930 resulted in no indications of the presence of *Brucella* organisms. Samples represented were four certified, two pasteurized, one pasteurized goat's milk of the San Francisco Bay region, and four raw milk producers who supply a small community in the Sacramento Valley.

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Subarachnoid Immunization.—On account of the almost complete absence of antibodies in the normal cerebrospinal fluid and the impossibility of materially increasing cerebrospinal humoral defenses by the usual methods of immunization, several laboratory scientists have tested the possibility of direct immunization of meningeal surfaces by the local injection of vaccines. One alleged successful clinical application is currently reported.